GOVERNMENT VETERINARY DEPARTMENT.

CONTAGIOUS DISEASES.

Reported in Great Britain during the week ending October 20th 1888.

The returns published in the London Gazette, of October 26th, show that in the week ending 20th, there were 11 fresh outbreaks of pleuro-pneumonia reported: 10 in England and only one in Scotland. The outbreaks in England are beyond the weekly average for some time past and this seems chiefly due to a series of outbreaks in Somersetshire, where 3 occurred within the week; the other outbreaks reported were in the Metropolis 3; and 1 each in Durham, Essex, Warwick, and York (W.R.) The single outbreak in Scotland took place in Forfarshire.

The decrease of this disease in Scotland has recently been very marked; during last year the average number of outbreaks was about 6 per week. In the first quarter of this year they were nearly 7 per week, in the second quarter about 5 weekly, in the third quarter about 3 a week, and now for the first three weeks of October there have only been 2 outbreaks.

There were 21 cattle attacked by the disease during the week: 19 in England, and only 2 in Scotland.

In England, during the week, there were 134 healthy cattle slaughtered because they had been in contact with diseased cattle; but there were none slaughtered in Scotland on that account.

Anthrax: Three outbreaks of this disease were reported in the counties of Lincoln (Holland), Lincoln (Lindsey), York (W.R.), in England; and one in Scotland in Banffshire. In each of the outbreaks in England only one animal was attacked; but in Banff eight animals were affected and all died. The returns do not show whether these animals were cattle, sheep, or swine; and it would certainly render them of much more value did they supply that information, as they do in the case of Rabies.

Glanders and Farcy: There were 10 fresh outbreaks of the former and 9 of the latter reported in the week, and with the exception of 1 outbreak of glanders in Essex, all the others were in the Metropolis.

The number of horses affected with glanders was 13, of which 12 were in the Metropolis; and there were 17 reported as suffering from farcy in the same district.

Rabies: During the week there were 3 cases of this disease in dogs, reported from Lancashire, Middlesex and the Metropolis.

EXTRACTS.

ON THE ORGANIC FERMENTS, OR PTOMAINES.

By Professor Ivison Macadam.

(Being Extracts from the Introductory Address delivered at the Opening of the New Veterinary College, Edin.)

Commencing with a few introductory remarks on the connection between Chemistry and the other subjects taught in Veterinary Schools, Professor Macadam went on to discuss the questions of fermentation and putrefaction. After stating that the fermentation or putrefaction of albumenoids is carried out by various members of the family of organisms known as Bacteria, and detailing the Classification of them by Cohn, he said, Chemically, Bacteria may be classified into—

(1). *Anærobic*—or those which do not require air for their life. The members of this division *do not* lead to fermentation.

(2). *Ærobic*—or those which require air for their existence, and which are reduced to inactivity when deprived of oxygen. The members of the group *may* cause fermentation.

(3). *Optionally Anærobic*—in which vitality is lowered by the absence of oxygen but not totally suspended. This is the pathogenic class.

The members of this latter sub-division are frequently thrown into the ærobic class, as oxygen is undoubtedly necessary for their reproduction.

The substances formed by these Bacilli are frequently most energetic and very often highly poisonous. They contain nitrogen, and are members of the class of substances known as alkaloids. Originally this class of bodies included simply a few organic bases derived from plants, and which on account of the fact that they were alkaline and exerted basic properties like the inorganic alkalies, Potash, Soda, and Ammonia, were called Vegeto-Alkalies, or Alkaloids. Later, certain animal substances were added to the series (urea) and afterwards as the Science of Organic Chemistry progressed, a large addition was made in the so-called Artificial Alkaloids or Compound Ammonias. The substances produced by putrefaction have the distinctive term applied to them of Ptomaines. This name was first given by Selmi (Zeitschr. des Æsteri. Apoth. Ver. March 1st, 1878) to a base which he had isolated from exhumed human bodies.

In May of the same year, Selmi printed a further paper, giving the results of a much more extended research in which he showed that instead of one Ptomaine there were a series of these Cadaverie Alkaloids obtainable from putrescent animal matter, and he gave the general properties of the class as also some of the tests. Sulphuric acid he found to give a red-violet coloration; Hydrochloric acid mixed with Sulphuric acid a red-violet colour, and Sulphuric acid with Bromine water a red-violet colour which faded. These tests are of interest as being closely allied to a principal test for strychnine.

Being so extremely like the Alkaloides in their

general properties, they become very important in Toxicological cases, and it is of the greatest importance that we should be possessed of some one or more tests which would, without doubt, show the presence or absence of the class.

Panum proved that all Albumenoid substances when allowed to putrefy, gave rise to poisonous compounds, and *Bergman* shortly afterwards described a putrefactive compound, which he called "SEPSIN."

Panum and Schweninger continuing the research, shewed that the poison produced depended on the stage that decay had reached, in other words, that instead of one body, Sepsin, a series of "Ptomaines" were formed, and that these substances differed in their physiological actions.

Sonnenschein and Zuelzer working with the fluid from anatomical maceration obtained an *Alkaloid* which had all the characteristics of *Atropine*, and they also obtained a like substance in poisonous sausages, and a further body which produced *tetanic* symptoms was noticed. *Tetanic* spasms are also produced by a substance formed during the putrefactive decay of ordinary maize, and these spasms are accompanied by after narcotism. This last, however, may be due to the presence of *lactic Acid* or *Sodium lactate*, both of which produce effects very similar to those of *morphia*. The production of putrefaction compounds may be the cause of the tetanic symptoms traceable to wounds which have not been antiseptically dressed.

The skin diseases which occur after partaking of decomposing fish are doubtless due to "*Ptomaines*."

Sonnenschein's Alkaloid has also been obtained from the bodies of patients dying from typhus fever, showing a close analogy between the condition of the body during putrefaction and whilst under the fever.

Brouaidel and Bouting proposed as a distinguishing test the reducing action possessed by the Ptomaines on Potassium Ferricyanide, and which power they stated was not possessed by any of the vegetable alkaloids, excepting only Morphine and Veratrine. It has, however, been shown that this reaction is also produced by hyoscyanine and a number of other alkalies, including aconitine, nicotine, digitaline, and eserine.

No other test has as yet been discovered which will prove decidedly the presence or absence of the ptomaine class, and this knowledge has done not a little to complicate Toxicological investigations.

Giacomelli has found that during the putrefaction of Albumenoids an alkaloidal body is produced, which gives many of the tests for Picrotoxin, although it differs from that substance in its physiological action. The presence of a similar material in a sample of beer led to the belief that the liquid had been adulterated with Cocculus Indicus, but after-proof showed that the poison had been derived from the alteration of the Albumenoids of the grain.

Decomposing flesh yields a number of ptomaines—Neuradine, Muscarine, Cadaverine and others. From the bodies of patients who have died of specific diseases, highly poisonous alkaloids have been obtained—the Cholera-ptomaine, Typho-toxine and Tetanine.

The poisonous effects of bread made from ergotised grain have been shown to depend on a toxic ptomaine resulting from the action of the mycelium on the albumen of the grain.

Milk Ptomaine. In 1887 an epidemic amongst soldiers in the Punjab was traced to milk; and Firth (Lancet i, 1887, p. 213) found that an Alkaloidal body, to which he gives the name *lactotoxine* was present. The cause of the epidemic was undoubtedly due to putrefaction caused by unwashed vessels.

The lactic Bacillus also sets up a fermentation in milk by which the milk sugar, or lactose, is converted into lactic acid. This is the usual souring process in milk. If, however, the sour milk is allowed to remain in contact with air it passes into a further putrefaction in which the Bacillus converts the lactic acid, of the first decomposition, into Butyric Acid; Carbonic Anhydride and Hydrogen being also liberated.

The poison produced by the Anthrax Bacillus has not, so far as I am aware, been isolated; nor has the body produced by the hay bacillus, been obtained.

The Anthrax Bacillus belongs to the Ærobic or air requiring class, and it is most likely that its rapid and deadly action is due to the absorption of the oxygen of the blood and consequent asphixia of the patient.

The Bacillus Ureæ (vibrio) is found in the urine—the Urea of which it converts into Carbonate of Ammonia.

This Bacillus is frequently followed by, another organism which oxidises the Ammonia into Nitric Acid. It is one of the most important bacilli, and lives only in the dark. It is the active agent in the oxidation of the organic matters contained in sewage when such is employed to irrigate land. Unfortunately the bacillus does not have the power of killing any pathogenic bacteria present, which may therefore again pass into the water.

In connection with this research it may be stated that *Villiers* (Bull. de la Soc. Chim. xliii. 550) has shown that alkaloidal bodies are not present in normal or healthy urine, but indisposition instantly is followed by their production. He further suggests, what is evidently most probable, that should these poisonous substances increase to a greater extent than it is possible for the urine to carry them out of the system, then they may cause death. This would go far to show the advisability of supplying an abundance of liquids to patients labouring under certain diseases.

From *fresh* muscle a series of alkaloidal bodies have been obtained. They are less powerful than the ptomaines and are known as Lencomaines. Of these, Xantho-creatinine is the most abundant. Similar products can be obtained from yolk of egg, brain, liver, and other animal substances.

The presence of these Toxic Lencomaines in fresh animal substances is interesting and gives a possible reason for many cases of poisoning.

Bacteria are always present in water, even when derived from springs. These microbes are, however, not pathogenic. Pathogenic bacteria when introduced into spring water do not multiply, but gradually disappear—those which produce "resting-spores" remaining for the longest period.

Bacillus Anthracis spores were still capable of vitality after the lapse of a year. Typhus Bacillus was active after a month but not after ten and a half months. The Bacilli in waters, however, would seem to produce a change in the substances dissolved in the liquid, for the oxidizable organic matter decreases, whilst there is an increase in the amount of Ammonia. After a time the Ammonia becomes oxidised into Nitrates and Nitrites (Leone, Gaz. Chim. Ital. xvi. p. 505). During Nitrification atmospheric oxygen is necessary. In the presence of Carbonic Anhydride (Co 2) the bacteria decrease (Sohuke, Chem. Centr. 1886, p. 699) and are not capable of reproduction so long as the gas is present.

In these notes, I have tried to lay before you as shortly as possible, the main points contained in the mass of investigations which have been made since Selmi first isolated his Ptomaine. The field is still open, and the work as great as ever it was. No more interesting subject can be found and none that will better repay the labour expended. To obtain a substance which will kill the bacteria without proving toxic to the patient may be difficult, for Hatton has shown that many of the forms can live indifferently in an atmosphere of Air, Oxygen, Nitrogen, Hydrogen, Carbonic Oxide, Carbonic Anhydride, Cyanogen, Sulphurous Anhydride, Nitrous Oxides, Sulphuretted Hydrogen, Nitric Oxide, Acetylene, and Coal gas. Some of these gases they indeed possess the power of utilizing. Carbonic Oxide was oxidized into Carbonic Anhydride, Hydrogen and Marsh Gas being also produced. Cyanogen became Carbonic Anhydride and Nitrogen. Nitric Oxide passes into Nitrogen and Carbonic Anhydride.

Solutions of Salicylic Acid, Strychnine, Brucine, Morphine and Narcotine do not kill Bacteria, but Phenol, Alcohol, Permanganate of Potassium, and Spongy Iron are fatal to the organisms. Probably, oxidising substances, if given in weak solution, might prove useful, as indeed has already been found to be the case in the application of Chlorine water in cases of dyphtheritic throat.

NOTES AND NEWS.

North of England Veterinary Medical Association.

The next Meeting of this Society will be held at the County Hotel, Newcastle-on-Tyne, on Friday, November 9th, at 3 p.m., to resume the discussion of Mr. Clement Stephenson's paper on "Hereditary Unsoundness." The Meeting is expected to be an important one, and practitioners interested are invited. Several breeders of stock have received invitations to attend and give their experiences.

Grant to The Societe Centrale Veterinaire.

From a Letter of the French Minister of Agriculture.

Paris, 17th July, 1888.

"I have the honour to inform you that by to-day's decision I have granted a subsidy of 5,000 francs to the Central Society of the Veterinary Service to be devoted to the encouragement of Agriculture.

This sum shall shortly be ordered to be paid in the name of Mons. Prevost, the Treasurer, who will be able to present himself after an interval of fifteen days at the office of my Ministry, in order to receive the letter of advice necessary to procure the sum from the Treasury.

The Society should make mention of this subsidy upon the Official Programmes and Prize Lists of its Congresses, and in its Annual Report; in addition to which it should point out that the Subsidy is accorded by the Minister of Agriculture bestowable in the name of the Republic."

To the President, Société Centrale Vétérinaire.

A Toad in a Horse's Windpipe.

Mr. Willis, of North Farm, Lambourn, Berks, last week lost a valuable cart colt from a most extraordinary cause. The colt had for a long time suffered very much from difficulty of breathing, and had been attended by Mr. Wilkins, F.R.C.V.S., who did all he could for the poor animal, performing an operation on the throat to relieve the breathing, but all to no purpose, and the horse's suffering increased so much that it was most pitiable to see. Mr. Willis determined, therefore, to have the animal shot. Mr. Pavier cut up the carcase, and on severing the neck at the shoulders, to the astonishment of those present, a fairly sized toad was observed to crawl out from the opening in the windpipe, and the extraordinary cause of the poor animal's sufferings became at once apparent. The toad was almost red when extricated, but it has now assumed more its natural colour. It is now in the possession of Mr. Wilkins.

[We have to thank Mr. John Wallin for sending us the above, and should be glad to hear from Mr. Wilkins.]

Dipterous Larvæ Parasitic in Man:

Portchinski *(Humboldt)* shows that the majority of the cases of disease in human subjects, occasioned by the maggots of flies, are due to *Sarcophagi Wohlfahrti*. He gives this name to the insect in honour of Dr. Wohlfahrt, of Halle, who first described the fly, and proved its parasitic character by rearing it from larvæ *sneezed out* by a man who had been driven almost frantic by headache. *S. Wohlfahrti* seems accordingly to be the European representative of the American fly, *Lucilia hominivora*. According to Meinert, a species of *Lucilia* is parasitic on man also in Europe.

Think of It!

Professor Buchanan, of the Glasgow University, has just made a statement which should "give pause" to parents who think of making doctors of

their sons. Speaking at the opening of the Medical Session of the Glasgow University, he declared that, of every hundred young men who entered the medical classes with a view to qualifying in surgery and medicine, only one issued from the ordeal of examination a full-blown medical man. One per cent!

Racing and Tracheotomy:

At Borris Races, in Ireland, on Thursday, one of the five horses which ran for the Adamstown Plate was Mr. Meredith's Dainty, upon which a fortnight ago the operation of tracheotomy was performed as a cure for roaring. Dainty won the race with a tube in its throat.

Animal Power of Resisting Poisons.

Several cases of the resistance of certain snails to poisons are on record. Krukenberg tells us that *Helix pomatia* can bear perfectly doses of nearly ¾ grain of sulphate of strychnine, but it perishes in an atmosphere of camphor. *H. aspersia* succumbs to a dose of strychnine sulphate less by one half. *Zonites algirus* resists strychnine as well as does *H. pomatia*.

CORRESPONDENCE.

Communications for the Editor to be addressed 20 Fulham Road, S.W.

Original articles and reports should be written on one side only of the paper, and authenticated by the names and addresses of the writers, not necessarily for publication.

We shall be obliged by early intelligence of all matters worth bringing under the notice of the profession, and thankful to any friends who may send us cuttings from local papers, containing facts of interest.

THE NATIONAL VETERINARY ASSOCIATION.

DEAR SIR,

As Mr. Hurndall has gone into public print with a subject, which, so far as I can gather, is purely a matter between himself and the Association. I should be glad if you will allow me space to ask him to state plainly what his grievance is?

From his communication, I cannot understand whether I have omitted to make him acquainted with something I ought to have done? or whether I have violated any rule? or departed from the usual course of procedure adopted in previous years? or whether he considers I have been instrumental in forming a "ring," as he evidently considers has been formed in previous years; because he asks: "is it a case of *another* ring being formed?" I should like him to point out the "ring" he refers to. Further, his remarks leave me undecided as to whether he considers the Secretary has not performed his duties—for the last seven years voluntarily undertaken—in a straightforward and becoming way?

As Mr. Hurndall's is the *only* intimation that has reached me of *any* members of the N.V.A., "being left out in the cold," I should be glad to know what he really means by that remark?

If Mr. Hurndall will kindly state *plainly* his grievances, and also as frankly state how, and in what way, he became acquainted with the information upon which he founds his conclusions; I (as the Hon. General Secretary) will be most happy to answer him.

Faithfully yours,

CAMBRIDGE. GEO. A. BANHAM.
(Hon. Gen. Sec., N.V.A.)

HEREDITARY ROARING.

SIR,

You suggested a little while ago that some facts on hereditary diesease would be worth recording. I send this extract, so that an opportunity of correcting or verifying may be afforded:—

Yours truly,
"LARYNX."

"Humphrey Clinker, men used to tell me when I was a boy, played his own march to the course, and his greatest son, Melbourne, did the same; but the great roaring criminal was Orville, who sired Muley, who poisoned the blood of Pocahontas. Nearly all sprung from Orville were racehorses, and Muley sowed roarers broadcast. The incestuously bred Manœuvre, by Rector (son of Muley), dam by Muley, bred racehorses. They were sound and could stay."

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